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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/807,814	04/19/2001	Shinji Tanaka	1139-01	6169

35811 7590 05/21/2003

IP DEPARTMENT OF PIPER RUDNICK LLP  
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PHILADELPHIA, PA 19103

EXAMINER

THORNTON, YVETTE C

ART UNIT

PAPER NUMBER

1752

DATE MAILED: 05/21/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/807,814

Applicant(s)

TANAKA ET AL.

Examiner

Yvette C. Thornton

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 04 March 2003.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All   b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

### DETAILED ACTION

This is written in reference to application number 09/807814 filed on April 19, 2001, which is a 371 of PCT JP00/05911.

#### *Response to Amendment*

1. Claims 1-9 are currently pending.
2. The amendment to the instant claims is sufficient to overcome the claim objection set forth in the previous office action.

#### *Claim Objections*

3. Claim 6 (amended) is objected to because of the following informalities: the said claims has the typographical error "compromises" in line 2.. Appropriate correction is required.

#### *Claim Rejections - 35 USC § 103*

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baryznski et al. (US 4555471 A) in view of Boggs et al. (US 5236884 A). Baryznski teaches a multilayer image recording material suitable for the production of a relief image, which comprises, located one on top the other a dimensionally stable support (S); a photosensitive relief forming layer (RL); an intermediate layer (I) which is transparent to actinic light in the

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wavelength of 300-420 nm; and a mask forming layer (ML). The mask forming layer is sensitive to heat radiation and contains a thermochromic system which when irradiated with an IR laser undergoes an irreversible change in its absorption spectrum so that the optical density of the mask forming layer changes by not less than 1.3 units (see claims 1-3). The thermochromic system has an optical density of less than 0.5, preferably not more than 0.35, prior to being irradiated with IR laser and not less than 1.8, preferably greater than 3.0, after irradiation in the region of 300-420 nm (c. 2, l. 48-62). The said mask forming layer generally consist of an organic substance which under the influence of activators undergoes rearrangement or conversion to a form which possesses different absorption characteristics with respect to actinic light in the wavelength of 300-420 nm. Examples of suitable organic substances include cyanines, aromatic phenols, aromatic amines and there hydrochlorides (c. 3, l. 6-28). Examples of the said activators which under the action of heat, alter the absorption characteristics of the organic substance are compounds which under the action of heat, decompose to give radicals such as azodiisobutyronitrile or dicumyl, and organic compounds which under the action of heat, eliminate acids or bases such as phenolates, nitro compounds or nitrates (c. 3, l. 29-44). Although not absolutely necessary, it is, very advantageous if the thermochromic system in the mask forming layer (ML) is employed together with a binder. Particularly suitable binders are thermally stable transparent film forming polymers such as polystyrene, polyvinyl chloride and polyvinyl alcohol (c. 4, l. 16-29). The ML can also contain further additives such as plasticizers, polymer stabilizers, pigments and in particular dyes and /or visible thermochromic indicator systems which undergo a change in color under the action of heat. These are generally systems which

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contain a color producing substance which is usually colorless and an activator which when the system is heated causes the color producing substance to produce a coloration. Suitable examples include the leuco bases and leuco-lactone forms of diphenylmethane, triphenylmethane, fluorine, spiropyran or acridine dyes. Suitable activators are compounds those, which were discussed above (c. 4, l. 30-59). The photosensitive relief forming layer (RL) contains a polymeric binder, an ethylenically unsaturated photopolymerizable compound and a photoinitiator (c. 6, l. 24-c. 7, l. 40). The intermediate layer (I) consists of a transparent film forming polymer such as polyethylene, polypropylene, and polyester. The intermediate layer serves to prevent diffusion of components of the ML into the RL and vice versa. The intermediate layer generally exhibits only moderate adhesion to the RL, therefore, the ML can be readily removed by peeling from the RL after exposure to actinic light and before development of the relief image. The intermediate layer is preferably from 5 to 135  $\mu\text{m}$  thick (c. 7, l. 41-65). The production of the relief image is carried out as follows: (1) The mask forming layer is to imagewise irradiation with heat, in particular using an IR laser having a wavelength greater than 1.00 $\mu\text{m}$ . (2) The photosensitive relief-forming layer underneath the resulting mask layer is then exposed through the mask layer to actinic light having a wavelength of from 00 to 420 nm. (3) After this exposure, the intermediate layer together with the mask layer is removed from the exposed relief forming layer and the relief is developed in a conventional manner, generally by washing with a suitable solvent (c. 8, l. 29-52). It is the examiner's position that the taught photosensitive relief forming layer constitutes the claimed photosensitive layer; the taught intermediate layer constitutes the

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claimed film layer and the taught mask forming layer meets the limitations of the claimed optical density changing layer.

Barzynski teaches all the limitation of the instant claims except it fails to teach the use of a light-to-heat converting substance in the taught mask forming layer. Boggs teaches an embodiment wherein an infrared absorbing substance is employed for converting the infrared radiation into heat, which is transferred to the heat sensitive leuco dye to initiate the departure of the thermally removable leaving group and the migration of the thermally migratable acyl group to form a dye chromophore. The said absorber should be in the same layer or an adjacent layer as the as the heat sensitive compounds. The said absorber should be substantially non-absorbing in the visible region so that it will not add any substantial amount of color to the highlight areas of the image. The infrared absorber is preferably an organic compound such as cyanine, merocyanine, squarylium or thiopyrylium dye (c. 20, l. 65-c. 21, l. 13).

One of ordinary skill in the art would have been motivated by the teachings of Barzynski to develop an image recording material comprising a photosensitive relief forming layer, an intermediate layer and a mask forming layer wherein the mask forming layer comprises a color producing substance such as a color producing substance which is usually colorless and an activator which when the system is heated causes the color producing substance to produce a coloration. Suitable examples include the leuco bases and leuco-lactone forms of diphenylmethane, triphenyl-methane, fluorine, spiropyran or acridine dyes. One of ordinary skill in the art would have been further motivated by the teachings of Boggs to make the taught activator an infrared absorbing compounds such as cyanine, merocyanine,

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squarylium or thiopyrylium dye in order to not add any substantial amount of color to the highlight areas of the formed image (see Boggs, c. 21, l. 9-13). It is the examiner's position that the leuco base dyes would meet the limitations of a heat decomposable compound and the taught activator would meet the limitation of a light-to-heat converting substance.

***Response to Arguments***

6. Applicant's arguments with respect to the instant claims have been considered but are of little moment in view of the new ground(s) of rejection.

7. The examiner does however note that applicant argues that the references fail to show certain features of applicant's invention. The amendment to instant claim 1 introduces a process of use limitation that only requires the composition to be *capable* of undergoing evaporation or discoloration. More specifically, the claim recites method limitations that do not further define the material. Therefore, any method may be used to make the material. Consequently, the burden shifts to Applicant to provide evidence of an unobvious difference between the claimed product and the prior art. Furthermore, "The Patent Office bears a lesser burden of proof in making out a case of prima facie obviousness for product-by-process claims because of their peculiar nature" than when a product is claimed in the conventional fashion. In re Fessmann, 180 USPQ 324,326 (CCPA 1974), see MPEP 2113.

8. It is the examiner's position that the taught composition of Barzynski is capable of undergoing evaporation or discoloration for the reasons discussed in the art rejection above.

*Conclusion*

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

10. A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yvette C. Thornton whose telephone number is 703-305-0589. The examiner can normally be reached on Monday-Thursday 8-6:30.


12. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Janet C. Baxter can be reached on 703-308-2303. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

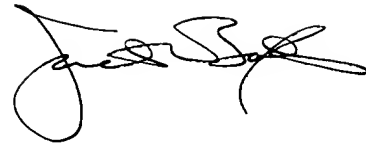
13. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1495.



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yct   
May 19, 2003



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